

We claim:

1. In an electrode string for use in an electric arc furnace for the production of high-melting metals, an electrode connection comprising:

electrode elements each having at least one end-side box with internal threads;

at least one nipple element with external threads to be screwed into said internal threads for interconnecting two of said electrode elements;

each of said elements having at least one contact surface to be placed in contact with at least one adjacent contact surface of another of said elements; and

a thin sliding layer applied on said contact surfaces;

said adjacent contact surfaces having a pressure force in a range of 0.1 to 80 N/mm².

2. The electrode connection according to claim 1, wherein at least one of said electrode elements has two of said end-side boxes with internal threads.

3. The electrode connection according to claim 1, wherein at least one of said electrode elements has one end-side box with internal threads and an integrated nipple element with external threads.

4. The electrode connection according to claim 1, wherein at least one of said electrode elements and a nipple element jointly form a preset.

5. The electrode connection according to claim 1, wherein said sliding layer contains at least one material lying on said contact surfaces partially or in a continuously closed manner and selected from the group of materials consisting of lubricants, solid lubricants, sliding lacquers, and additives, individually or in mixtures of two or more components, having kinematic viscosities of at least 20 mm²/s.

6. The electrode connection according to claim 1, wherein said sliding layer on said adjacent contact surfaces contains a material selected from the group consisting of fluoropolymers, polytetrafluoroethylenes (PTFE) and solid lubricants, and said adjacent contact surfaces have a pressure force in a range of 0.1 to 5.0 N/mm².

7. The electrode connection according to claim 6, wherein said solid lubricants are at least one of molybdenum disulfides and silicones.

8. The electrode connection according to claim 1, wherein said sliding layer on said adjacent contact surfaces contains a material selected from the group of viscous lubricants with kinematic viscosities of between 20 and 1000 mm²/s, and said adjacent contact surfaces have a pressure force in a range of 1 to 80 N/mm².

9. The electrode connection according to claim 8, wherein said kinematic viscosities are between 100 and 600 mm²/s.

10. The electrode connection according to claim 8, wherein said viscous lubricants are at least one of paraffins and esterified long-chain carboxylic acids.

11. The electrode connection according to claim 1, wherein said contact surfaces are at least one of end surfaces of said electrode elements, threaded surfaces of said internal threads of said electrode box and threaded surfaces of said external threads of said at least one nipple element.

12. The electrode connection according to claim 1, wherein said sliding layer on said contact surfaces has a thickness of

0.001 mm to 5.00 mm in a delivery state of said electrode elements.

13. The electrode connection according to claim 12, wherein said sliding layer on said contact surfaces has a thickness of 0.005 mm to 0.50 mm, in a delivery state of said electrode elements.

14. The electrode connection according to claim 1, wherein said electrode elements and said at least one nipple element are formed of a material selected from the group consisting of carbonized carbon and graphite.

15. The electrode connection according to claim 1, wherein said electrode elements are formed of carbonized carbon and said at least one nipple element is formed of graphite.